(b) if so, the likely impact of higher temperature on agriculture, and to what extent the crop yield is expected to be reduced; and

(c) the measures proposed to be taken to reduce the impact of higher temperature on various aspects of agriculture?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (PROF. K.V. THOMAS): (a) Yes, Sir.

(b) Temperature rise studies, conducted so far by Indian Council of Agricultural Research (ICAR), indicate that rise in temperature in India will affect crops, horticulture, water resources, livestock and fisheries sectors. Studies have also indicated that rise in winter temperature will have negative impact on wheat yield. The cultivation of apples is also shifting to higher elevations in Himachal Pradesh due to rise in temperature. Heat stress will have negative impact on milk yield of livestock. Increased surface sea temperature would cause migration of fish and changes in breeding habitats.

(c) ICAR, Department of Agriculture Research and Education in the Ministry of Agriculture has taken up a National Network Project on Climate Change to conduct research in agriculture and allied sectors for enhancing scientific adaptation and mitigation measures.

Focus on higher production for forthcoming Rabi crops

1688. MS. MABEL REBELLO:
DR. T. SUBBARAMI REDDY:

Will the Minister of AGRICULTURE be pleased to state:

(a) whether he had asked Government agencies to focus their attention towards maximizing production from the standing Kharif crop and prepare for additional production and higher productivity during forthcoming Rabi season;

(b) whether according to recent report of the National Rainfed Area Authority (NRAA), use of zero tillage and strip till drills for wheat cultivation in Indo- Gangetic plains which traditionally has low ground water levels can help utilizing residual moisture available after rice harvest; and

(c) if so, to what extent his directive has been considered and to what extent steps taken will help to recoup Kharif losses?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (PROF. K.V. THOMAS): (a) to (c) Yes, Sir. Government of India have taken several initiatives to increase more coverage of various crops during Rabi, 2009 in order to compensate the losses in kharif season to some extend and also to enhance the productivity. States are provided advisories for contingency crop planning, programmatic intervention such as use of truthful level (TL) seeds for Kharif Season only and additional power to the states. States have been given more flexibility to utilize the funds to meet the additional requirement of seed distribution. Subsidy norms of rice, wheat, jowar, bajra

and pulses only for Rabi/summer 2009, have been increased under various crops development schemes of Ministry of Agriculture to reduce the burden on farmers in drought affected areas. Age limit norms of certified seed of rice, wheat and pulses varieties have been relaxed and additional area coverage under boro/summer rice/wheat/pulses are envisaged for enhancing production. Additional allocations of rust resistant and terminal heat-tolerant varieties of wheat minikit have been made. Availability and supply of essential inputs such as fertilizer, additional power for irrigation has been ensured in coordination with States and various Central Ministries.

The National Rainfed Area Authority (NRAA) has given the recommendations on Drought Management. The authority, *inter alia*, "has recommended that the use of zero tillage in wheat utilize residual moisture after rice harvest, because zero tillage machines allows timely sowing of wheat on relatively moist field conditions as compared to traditional system of wheat cultivation." In this regard, the directive has already been issued to major wheal growing States to take-up above technologies for coverage of more area to enhance the production and productivity of wheat crop. Large number of Zero till seed drill distributed to the farmers under National Food Security Mission and Farm Mechanization under Macro Management of Agriculture.

Inter-cropping option to augment cane supply

1689. SHRI V. HANUMANTHA RAO:
DR. T. SUBBARAMI REDDY:

Will the Minister of AGRICULTURE be pleased to state:

(a) whether with crushing capacity far outstripping sugarcane availability and growers moving to more remunerative crops, northern sugar mills are seeking to promote inter-cropping alternatives to retain farmer interest in cane;

(b) whether sugarcane growers met P.M. on 16th November, 2009 and explained their miseries;

(c) whether sugar mills are also looking at inter-cropping option to augment cane supplies;

(d) if so, whether farmers were urged to grow short duration crops with cane; and

(e) the concrete steps and measures Government has taken to grow short duration crops with cane and to what extent it has given good results?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (PROF. K.V. THOMAS): (a) Yes, Sir. The State Governments of Punjab, Haryana, Uttar Pradesh and Uttarakhand as well as the sugar mills in Northern India are encouraging the promotion of inter-cropping of sugarcane with suitable crops in order to enhance the production of sugarcane and farm income so that farmers continue to grow and supply cane to sugar mills. The suitable inter-crop combinations in the Northern States, are given in Statement-I (*See* below).